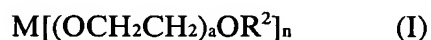


WHAT IS CLAIMED IS:

1. A crosslinkable liquid silicone composition suited, on curing, for the long-lasting protective and/or applicational coating/treatment of a textile substrate,
5 comprising a formulation of:

(A) at least one polyorganosiloxane (POS) resin containing, per molecule, at least two different siloxyl units selected from among those of M, D, T and Q types, one of said structural units being a T unit or a Q unit, and at least three hydrolyzable/condensable groups of OH and/or OR¹ types, in which R¹ is a linear
10 or branched C₁ to C₆ alkyl radical;

(B) either (B-1), at least one metal alkoxide of general formula:



- 15 in which M is a metal selected from the group consisting of Ti, Zr, Ge, Si, Mn and Al; n = valency of M; the R² substituents, which may be identical or different, are each a linear or branched C₁ to C₁₂ alkyl radical; a represents zero, 1 or 2; with the provisos that, when the symbol a represents zero, the alkyl radical R² has from 2 to 12 carbon atoms and, when the symbol a represents 1 or 2, the
20 alkyl radical R² has from 1 to 4 carbon atoms;

or (B-2), at least one metal polyalkoxide produced by the partial hydrolysis of the monomeric alkoxides of formula (I) indicated above in which the symbol R² is as defined above with the symbol a representing zero;

or a combination of (B-1) and (B-2);

- 25 or (B-3) a combination of (B-1) and/or (B-2) with:

(B-3/1), at least one optionally alkoxyated organosilane containing, per molecule, at least one C₂-C₆ alkenyl group,

and/or (B-3/2), at least one organosilicon compound comprising at least one epoxy, amino, ureido, isocyanato and/or isocyanurate radical;

5 (C) either (C-1), at least one silane and/or at least one POS which is essentially linear and/or at least one POS resin, each of said organosilicon compounds containing, per molecule, attaching functional group(s) (AF) capable of reacting with (A) and/or (B) or capable of generating, *in situ*, functional groups capable of reacting with (A) and/or (B) and applicational functional group(s) (UF)
10 which can be identical to or different from said AFs;

or (C-2), at least one hydrocarbonaceous compound comprising at least one saturated or unsaturated, linear or branched hydrocarbonaceous radical and optionally one or more heteroatom(s) other than Si and existing in the form of a monomeric, oligomeric (linear, cyclic or branched) or polymeric (linear, cyclic or
15 branched) structure, the said hydrocarbonaceous compound containing, per molecule, attaching functional group(s) (AF) capable of reacting with (A) and/or (B) or capable of generating, *in situ*, functional groups capable of reacting with (A) and/or (B) and applicational functional group(s) (UF) which can be identical to or different from the AFs;

20 or a mixture of (C-1) and (C-2);

(D) optionally, a nonreactive additive system comprising:

(i) at least one organic solvent/diluent and/or at least one nonreactive organosilicon compound; (2i) and/or water, in the event of a liquid silicone formulation in aqueous dispersion or emulsion; and

25 (E) optionally, at least one auxiliary agent other than (D).

2. The crosslinkable liquid silicone composition as defined by Claim 1, comprising, per 100 parts of constituent (A), 0.5 to 200 parts of constituent (B) and 1 to 1,000 parts of constituent (C).
- 5 3. The crosslinkable liquid silicone composition as defined by Claim 2, comprising up to 10,000 parts of constituent (D).
4. The crosslinkable liquid silicone composition as defined by Claim 3, comprising up to 100 parts of constituent (E).
- 10 5. The crosslinkable liquid silicone composition as defined by Claim 1, said constituent (A) comprising OR^1 hydrolyzable/condensable groups, in which R^1 is a linear or branched C_1 to C_3 alkyl radical.
- 15 6. The crosslinkable liquid silicone composition as defined by Claim 1, said constituent (A) comprising a mixture (A-3):
- of at least one resin containing at least two different siloxyl units selected from among those of formulae $(\text{R}^3)_3\text{SiO}_{0.5}$ (M unit), $(\text{R}^3)_2\text{SiO}$ (D unit) and $\text{R}^3\text{SiO}_{1.5}$ (T unit), at least one of said structural units being a T unit, with the proviso that
- 20 the OH and/or OR^1 groups may be borne by the M, D and/or T units and the content by weight of said OH and/or OR^1 groups ranging from 0.2% to 10% by weight, and
- of at least one other resin containing at least two different siloxyl units selected from among those of formulae $(\text{R}^3)_3\text{SiO}_{0.5}$ (M unit), $(\text{R}^3)_2\text{SiO}$ (D unit) and
- 25 $\text{R}^3\text{SiO}_{1.5}$ (T unit) and SiO_2 (Q unit), at least one of said structural units being a Q unit, with the proviso that said OH and/or OR^1 groups may be borne by the M, D

and/or T units and the content by weight of said OH and/or OR¹ groups ranging from 0.2% to 10% by weight; and further wherein the R³ radicals comprising said resins being identical or different and selected from the group consisting of C₁-C₆ alkyl radicals which are linear or branched, C₂-C₄ alkenyl radicals, the phenyl radical and the 3,3,3-trifluoropropyl radical.

7. The crosslinkable liquid silicone composition as defined by Claim 1, said constituent (B) comprising (B-1), an alkyl titanate, an alkyl zirconate, an alkyl silicate, or mixture thereof.

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8. The crosslinkable liquid silicone composition as defined by Claim 7, said constituent (B) comprising (B-1), ethyl titanate, propyl titanate, isopropyl titanate, butyl titanate, 2-ethylhexyl titanate, octyl titanate, decyl titanate, dodecyl titanate, β -methoxyethyl titanate, β -ethoxyethyl titanate, β -propoxyethyl titanate, the titanate of formula $\text{Ti}[(\text{OCH}_2\text{CH}_2)_2\text{OCH}_3]_4$, propyl zirconate, butyl zirconate, methyl silicate, ethyl silicate, isopropyl silicate, n-propyl silicate, or mixture thereof.

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9. The crosslinkable liquid silicone composition as defined by Claim 1, said constituent (B) comprising a polytitanate (B-2) produced via the partial hydrolysis of isopropyl, butyl or 2-ethylhexyl titanate; a polyzirconate (B-2) produced via the partial hydrolysis of propyl or butyl zirconate; a polysilicate (B-2) produced via the partial hydrolysis of ethyl or isopropyl silicate; or mixture thereof.

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10. The crosslinkable liquid silicone composition as defined by Claim 1, said constituent (C) comprising (C-1) an organosilicon compound selected from the group consisting of:

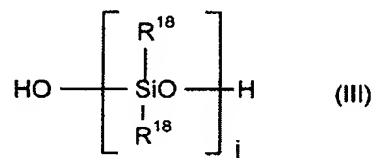
(1) a polyalkoxysilane of formula:

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in which the radicals R^1 and R^2 and the symbol a are as defined with respect to the constituents (A) and (B); and b is 1, 2 or 3;

10 (2) an essentially linear diorganopolysiloxane comprising a hydroxyl group at each chain end, of formula:

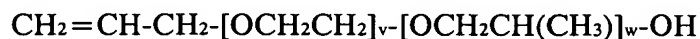


15 in which the radicals R^{18} , which may be identical or different, are each a saturated or unsaturated, substituted or unsubstituted, aliphatic, cyclic or aromatic monovalent C_1 to C_{13} hydrocarbonaceous radical; j has a value sufficient to confer, on the diorganopolysiloxanes of formula (III), a dynamic viscosity at 25°C ranging from 1,000 to 10,000,000 mPa·s; with the proviso that the hydroxylated POSs of
20 formula (III) may be a mixture of several hydroxylated polymers which differ from each other by the value of the viscosity and/or the nature of the substituents bonded to the silicon atoms; with the further proviso that the POSs of formula (III) can optionally comprise T units of formula $R^{18}SiO_{3/2}$ and/or SiO_2 units in the

proportion of at most 1%, these percentages expressing the number of T and/or Q structural units per 100 silicon atoms;

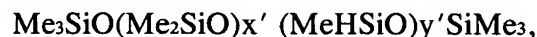
(3) POS-polyether copolymers produced by the reaction: of a polyether of the formula:

5



with a POS oil of formula:

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in which Me = methyl; v and w are other than 0; x' ranges from 20 to 150; y' ranges from 2 to 10; with the proviso that the copolymer may comprise an additive;

15

(4) a hydroxylated POS resin comprising T and optionally M and/or optionally D siloxyl units as defined with respect to the resins (A-1);

(5) a hydroxylated POS resin produced by hydrolysis of an alkoxysilane S substituted by UFs, by homocondensation of a hydrolyzed silane S, or by stripping the hydrolysates deriving from the UFs; and

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(6) mixtures thereof.

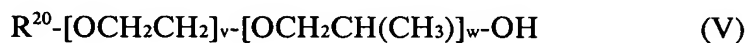
11. The crosslinkable liquid silicone composition as defined by Claim 1, said constituent (C) comprising (C-2), a fluorinated alcohol of formula:

25



in which R¹⁹ is a linear or branched aliphatic radical having from 2 to 20 carbon atoms, the said carbon atoms being substituted by at least one fluorine atom and optionally by at least one hydrogen atom.

- 5 12. The crosslinkable liquid silicone composition as defined by Claim 1, said constituent (C) comprising (C-2), an unblocked polyether of formula:



- 10 in which R²⁰ is a linear or branched alkyl radical having from 1 to 4 carbon atoms and the symbols v and w are as defined above.

13. A textile substrate coated with the crosslinkable liquid silicone composition as defined by Claim 1.

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14. A textile substrate coated with the silicone composition as defined by Claim 1; but in cured state.

15. A textile substrate, the individual strands of which having a protective sheath therearound, said protective sheath comprising the silicone composition as defined by Claim 1, but in cured state.
- 20

16. A method for imparting softness, hydrophobicity, oleophobicity, hydrophilicity or antistatic properties to a textile substrate, comprising depositing thereon a thus effective amount of a silicone composition as defined by Claim 1, and thence curing said composition.
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17. The crosslinkable liquid silicone composition as defined by Claim 1, diluted in an organic diluent, organic solvent or water, in a proportion of 1 to 30 parts by weight of formulation per 100 parts of weight of solvent, diluent or water.

5 18. A method for the treatment of a textile substrate, comprising directly depositing thereon the silicone composition as defined by Claim 1 and thereafter curing said composition.

10 19. A method for the treatment of a textile substrate, comprising coating the individual yarns, fibers and/or filaments of which, at any point in the preparation, restoration and/or maintenance thereof, with the silicone composition as defined by Claim 1 and thereafter curing said composition.